

Although Winther discloses a draft gear with a front cushion 18 in yoke 1 and a rear cushion 20 against rear wall 16 of yoke 1, under buff loads, it is well known that only front cushion 18 absorbs the force.

U.S. Patent No. 5,312,007 – Kaufhold et al. discloses a draft gear pocket casting 36 with upper and lower walls 52, 56. Rear wall 60 has an aperture 62. Rod 134 has an end that extends through opening 62 in pocket casting rear wall 60 and through draft gear 120 segments 122 having a passage 132 therethrough. Nut 138 is screwed on bolt end 140 which can place a compressive load on elastomeric elements 122.

U.S. Patent No. 2,282,146 – Mealing et al. Coupling device 20' abuts front follower 34. Follower 34 has a flat front face that engages draft lugs 36, and draft cushion C behind the front face. Moveable yoke 20 has a front end 35 engaging the rear of cushion C; the rear of yoke 20 engages rear follower block D. Abutment block 41 contacts center sill 12 and acts as a rear stop to cushion D.

Winther discloses a front follower 23 with legs 24 that extend outwardly to engage stop lugs 25. Claims 1 and 17 of the present case as amended set forth that at least part of the coupler bearing surface of the coupler follower extends forwardly of the stop contact surfaces of the coupler follower. Claims 9 and 21 as amended set forth a coupler follower having generally vertical forward facing indented stop surfaces. Such features of the coupler follower of the present invention are structural differences from the coupler follower of Winther with the legs 24 that extend outwardly from front follower 23 and from Mealing et al. that has a flat front face of its follower 34. The forward facing indented stop surfaces of the coupler follower or the coupler bearing surface of the coupler follower extending forwardly of the stop contact surfaces allow the draft gear assembly of the present invention to, under buff loads, compress both the front cushion and the rear cushion due to the extra travel of the follower to thereby combine the cushioning capacity of both the front and rear cushions.

Further, with regard to amended claim 9 of the present application, certain features of the center rod are set forth that are not disclosed in Kaufhold et al. The center rod is said to be free from tension in full draft, free from tension and compression in neutral, and free from compression in full buff. These features amount to features not disclosed nor obvious from Winther in view of Kaufhold.

With regard to amended claim 21, certain features of the coupler and yoke draft strokes are not disclosed in nor obvious from Winther, Kaufhold nor Mealing. The coupler and yoke draft strokes being such that the distance between the front face of the yoke back wall and the coupler follower decreases from neutral to full draft, and the distance from the rear face of the yoke back wall and the rear follower increases from neutral to full draft are not disclosed in nor obvious from the references.

Further, the coupler and yoke buff strokes being such that the distance between the front face of the yoke back wall and the coupler follower increases from neutral to full buff and the distance between the rear face of the yoke back wall and the rear follower decreases from neutral to full buff are not disclosed nor obvious from the references.

Reconsideration of the Examiner's rejection is requested.

Respectfully submitted,

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Amended Claims 1, 9, 17, 21 & 24

1. (amended) A draft gear assembly for use with railcars having coupler members, the draft gear assembly having front and back ends and comprising:

 a yoke having a back wall, a top wall extending from the back wall toward the front end of the draft gear assembly, and a bottom wall extending from the back wall toward the front end of the draft gear assembly;

 a coupler follower positioned between the back wall of the yoke and the front end of the draft gear assembly;

 at least one front resilient member positioned between the coupler follower and the back wall of the yoke;

 at least one back resilient member positioned between the yoke back wall and the back end of the draft gear assembly;

 the front and back resilient members being compressible;

 a rear follower positioned rearward of the back resilient member;

 [wherein the coupler follower has a buff stroke of 4-1/4 inches and the yoke has a draft stroke of 1-1/4 inches.]

a draft sill having front stops, the coupler follower including a pair of stop contact surfaces for contact with the draft sill front stops and a coupler bearing surface between the stop contact surfaces, at least part of the coupler bearing surface being forward of the stop contact surfaces of the coupler follower.

9. (amended) A draft gear assembly for use with a railcar having a coupler member and a draft sill with front and rear stops defining a draft gear pocket to receive at least part of the draft gear assembly, the draft gear pocket having a length between the front stops and rear stops, the draft gear assembly having front and back ends and comprising:

 a yoke having a back wall, a top wall extending from the back wall toward the front end of the draft gear assembly, and a bottom wall extending from the back wall toward the front end of the draft gear assembly;

a coupler follower positioned between the back wall of the yoke and the front end of the draft gear assembly, the coupler follower having a generally vertical, indented forward facing stop surfaces;

at least one front resilient member positioned between the coupler follower and the back wall of the yoke;

at least one back resilient member positioned between the yoke back wall and the back end of the draft gear assembly;

a rear follower positioned rearward of the back resilient member, the rear follower having a rearward facing stop surface;

a center rod extending through the rear follower, through the back resilient member and through the back wall of the yoke;

wherein prior to installation on the railcar the yoke, coupler follower, front resilient member, back resilient member, rear follower and center rod comprise an assembly, the assembly further including a shortening member on the center rod at the rear follower, the length of the assembly between the stop surface of the coupler follower and the stop surface of the rear follower being less than the length of the draft gear pocket;

wherein after installation [on the railcar] the rear follower is positioned against the rear stops; and

wherein after installation [on the railcar] the yoke has a neutral position, a full draft position forward of the neutral position, and a full buff position rearward of the neutral position;

the center rod being free from tension when the coupler member is in the full draft position;

the center rod being free from tension and compression when the coupler member is in the neutral position; and

the center rod being free from compression when the coupler member is in the full buff position.

17. (amended) A draft gear assembly for use with a railcar having a coupler member and a draft sill, the draft gear assembly having front and back ends and comprising:

a yoke having a back wall, a top wall extending from the back wall toward the front end of the draft gear assembly, a bottom wall extending from the back wall toward the front end of the draft gear assembly, and a yoke stop;

a draft sill having front stops;

a coupler follower forward of the back wall of the yoke and having a forward facing surface positioned against the yoke stop; said coupler follower including a pair of stop contact surfaces for contact with the draft sill front stops and a coupler bearing surface between the stop contact surfaces, at least part of the coupler bearing surface being forward of the stop contact surfaces of the coupler follower;

at least one front resilient member positioned between the coupler follower and the back wall of the yoke;

at least one back resilient member positioned between the yoke back wall and the back end of the draft gear assembly;

a rear follower positioned rearward of the back resilient member, the rear follower having a rearward facing stop surface;

a center rod extending through the rear follower, through the back resilient member and through the back wall of the yoke; and

a shortening member on the center rod at the rear follower[;].

[wherein the distance between the rearward facing stop surface of the rear follower and the forward facing stop surface of the coupler follower against the yoke stop is no more than 24-5/8 inches.]

21. (amended) In combination, a draft gear assembly, a coupler and a draft sill,

the draft sill having a pair of front stops and a pair of rear stops;

the draft gear assembly having front and back ends and comprising:

a yoke having a back wall, a top wall extending from the back wall toward the front end of the draft gear assembly, and a bottom wall extending from the back wall toward the front end of the draft gear assembly, the yoke having a buff stroke from a neutral position to a full buff position and a draft stroke from the neutral position to a full draft position;

the back wall of the yoke being between the front stops and rear stops of the draft sill;

a coupler follower positioned between the back wall of the yoke and the front stops of the draft sill, the coupler follower having generally vertical, indented forward facing stop surfaces and having a buff stroke from the neutral position to a full buff position;

a rear follower positioned against the rear stops of the draft sill, the yoke back wall being longitudinally spaced from the rear follower;

at least one front resilient member [filling the longitudinal distance] between the coupler follower and the back wall of the yoke;

at least one back resilient member [filling the longitudinal distance] between the rear follower and the back wall of the yoke;

a coupler extending forward from the yoke, the coupler having a neutral position, a draft stroke from the neutral position to a full draft position forward of the neutral position and a buff stroke from the neutral position to a full buff position back from the neutral position;

the coupler and yoke [having] draft stroke[s] being such that the distance between the front face of the yoke back wall and the coupler follower decreases from the neutral spacing when the coupler is in the full draft position and the distance between the rear face of the yoke back wall and the rear follower increases from the neutral spacing when the coupler is in the full draft position;

the coupler, yoke and coupler follower [having] buff stroke[s] being such that the distance between the front face of the yoke back wall and the coupler follower decreases from the neutral spacing when the coupler is in the full buff position and the distance between the rear face of the yoke back wall and the rear follower decreases from the neutral spacing when the coupler is in the full buff position[;].

[the coupler draft stroke being 1-1/4 inch, and the coupler buff stroke being at least 4-1/4 inches.]

24. (amended) The combination of claim 21 further including a center rod extending through the rear follower, through the back resilient member and through the back wall of the yoke,

wherein the yoke, coupler follower, front resilient member, rear follower and center rod comprise an assembly prior to installation [on the railcar], the assembly further including a shortening member on the center rod at the rear follower, the length of the assembly from the coupler follower to the rear follower being less than 24-5/8 inches;

and wherein after installation [on the railcar] the center rod is free from tension when the coupler moves through the draft stroke and free from compression when the coupler moves through the buff stroke.

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d10 in FIGS. 2 and 12. Thus, the total buff stroke for the coupler 22F, 22E, 22R and coupler follower 26F, 26E, 26R is 4-1/4 (4.25) inches, and the total buff stroke for the yoke 24F, 24E, 24R is 3 inches. Accordingly, the distance between the coupler horn 23 and the front 21 of the draft sill [12is] 12 is shortened to d11 at the full buff position. Examples of values for the lengths and distances at full buff are: 3-5/8 (3.63) inches for d9; 10-1/8 (10.13) inches for d10; and 1/2 inch for d11.

It should be understood that under extremely high loads or at relatively high speeds, the coupler may continue to move back through the last 1/2 inch, and may contact the striker on the front end 21 of the draft sill 12. Accordingly, although it is generally undesirable in this design, the coupler head could have a full buff stroke of 4-3/4 inches, nominally. Thus, as shown in FIG. 29, the distance traveled by the coupler during the full buff stroke may exceed the 4.25 inches of buff travel provided by the draft gear assembly. The expression "full buff position" should be understood to encompass a coupler buff stroke of 4-1/4 to 4-3/4 inches.

It should also be understood that the dimensions, lengths and distances set forth above are nominal ones. Normal manufacturing tolerances may vary these dimensions, lengths and distances. Dimensions, lengths and distances stated in this description and in the claims should be understood to include variations due to normal tolerances. In addition, unless expressly set forth in the claims, the invention is not limited to any particular dimension, length or distance.

Compression setting of the resilient members 28, 30, may affect the length of the draft stroke and buff stroke. Accordingly, references to the length of the buff or draft stroke of any part in the claims should be understood as referring to a design value, a value that may change over time with use and wear. Thus, reference to a full draft position or draft stroke of 1-1/4 inches should be understood as including positions and draft strokes that vary from this length with compression set and loss of pre-load.

Throughout buff movement of the draft system coupler and yoke, there is no contact between the coupler pin or key 52, 59, and the yoke 24F, 24E, 24R. The coupler pin or key 52, 59 is thus not stressed during buff movement of the yoke 24F, 24E, 24R. It is only during draft movement of the yoke that the yoke contacts the coupler pin or key.